REMARKS

The Examiner's indication of allowable subject matter of claim 8 is noted with appreciation.

Claims 1 and 3-21 are pending in the application. Claim 1 has been amended to better define the claimed invention. Amended claim 1 finds solid support in the original specification, e.g., at page 2, lines 1-4 and lines 5-11. Claim 2 has been cancelled without prejudice or disclaimer. Allowable claim 8 has been rewritten in independent form including all limitations of base claim 1 and intervening claim 7, in the manner kindly suggested by the Examiner in the Office Action. New claims 12-21 have been added to provide Applicants with the scope of protection to which they are believed entitled. The specification has been amended to remove a typographical error. The Abstract has been revised in compliance with commonly accepted US patent practice. No new matter has been introduced through the foregoing amendments.

The Examiner's *35 U.S.C. 102(b)* rejection of claims 1-7, 9 and 11 as being anticipated by *Nakajima* (U.S. 2002/0020840) as well as *35 U.S.C. 103(a)* rejection of claim 10 as being unpatentable over *Nakajima* in view of *Lane* (USPN-6,670,289) are noted. Although Applicants do not necessarily agree with the Examiner's position, independent claim 1 has nevertheless been amended to specifically define the claimed invention over the applied references.

Amended claim 1 recites a method of passivating a semiconductor device, comprising: placing a semiconductor device in a chamber, the semiconductor device having a first type of transistors and a second type of transistors; introducing a first passivating gas and a second passivating gas into the chamber, wherein **the first passivating gas and the second passivating gas are adapted to respectively passivate the first type of transistors and the second type of transistors**; and heating the semiconductor device to a temperature for a period sufficient to passivate the semiconductor device.

The added claim language finds solid support in the original application. For example, on page 2, lines 1-4 of the specification, it is disclosed that since the **two passivating gases** can be selected to have **one gas suitable for passivating PMOS transistors and the other gas suitable for NMOS transistors**, the inventive method can achieve a better result for both the NMOS and PMOS transistors. On page 2, lines 5-11 of the specification, it is disclosed that the two different passivating gases can be introduced into the chamber simultaneously. Alternatively, **the gas suitable for passivating the first type of transistors** can be introduced into the chamber first. After the semiconductor device has been heated to a temperature for a period sufficient to passivate the first type of transistors, **the gas suitable for passivating the second type of transistors** is introduced into the chamber maintained at the high pressure and the semiconductor device is heated to a temperature for a period sufficient to passivate the second type of transistors. Furthermore, on page 3, lines 16-19 of the specification, it is disclosed that the fabrication-induced defects such as dangling bonds or poly-silicon grain boundary (unsaturated silicon bonds) within the semiconductor device 100 are repaired by subjecting the semiconductor device 100 to a passivation process with **at least two different passivating gases**. Thus, the inventive method is characterized in that **the first passivating gas and the second passivating gas are adapted to respectively passivate the first type of transistors and the second type of transistors.** In other words, the first passivating gas (e.g., H_2 or N_2) and the second passivating gas (e.g., H_2O or NH_3) are different and are suitable for passivating the first type of transistors and the second type of transistors, respectively. *See* also the disclosure on page 4, lines 6-13 of the specification.

Nakajima clearly fails to teach or suggest the highlighted claim limitation. In particular, on page 8, paragraph 91 of *Nakajima*, it is disclosed that the passivation film is made by plasma CVD from a silicon oxynitride film formed using SiH_4, N_2O, and NH_3, or from a silicon nitride film manufactured by using SiH_4, N_2, and NH_3. A plasma hydrogenation process is performed first, before forming the film, by introducing a substance such as N_2O, N_2, or NH_3. Thus, SiH_4,

N_2O, and NH_3 are adapted to form the silicon oxynitride film, rather than to passivate PMOS or NMOS transistors, as presently claimed. Likewise, the *Nakajima* **SiH_4, N_2, and NH_3 are adapted to form the silicon nitride film, rather than to passivate PMOS or NMOS transistors**, as presently claimed.

The most relevant teaching of *Nakajima* appears to be the teaching of **a plasma hydrogenation process that is performed by introducing a single substance such as N_2O, N_2, or NH_3**, found on page 8, paragraph 89 of the applied reference, where *Nakajima* merely discloses that the step of hydrogenating the island semiconductor layers can be added to terminating the dangling bond of the semiconductor layer.

Although *Nakajima* appears to disclose that a plasma hydrogenation process is performed by introducing **a single substance** such as N_2O, N_2, or NH_3 and the step of hydrogenating the island semiconductor layers can be added to terminate the dangling bond of the semiconductor layer, *Nakajima* does not disclose that the plasma hydrogenation process is performed by introducing **two different substances** for respectively passivating PMOS transistors and NMOS transistors. Thus, *Nakajima* fails to disclose the newly claimed **first passivating gas and second passivating gas that are adapted to respectively passivate the first type of transistors and the second type of transistors**.

Accordingly, amended claim 1 is not anticipated by *Nakajima* and is clearly patentable over the reference.

Claims 3-7 and 9-16 depend from claim 1, and are considered patentable at least for the reason advanced with respect to amended claim 1. Claims 3-7 and 9-16 are also patentable on their own merits since these claims recite other features of the invention neither disclosed, taught nor suggested by the applied art.

For example, as to claim 13, *Nakajima* fails to disclose or suggest that the first passivating gas is **H_2**.

As to claim 14, *Nakajima* fails to disclose or suggest that the second passivating gas is **H_2O**.

As to claim 15, *Nakajima* fails to disclose or suggest that the **different** first and second passivating gases are introduced into the chamber **simultaneously**.

As to claim 7, *Nakajima* fail to disclose or suggest that **the first passivating gas is introduced into the chamber and the semiconductor device is heated to a temperature for a period sufficient to passivate the first type of transistors, and then the second passivating gas is introduced into the chamber and the semiconductor device is heated to a temperature for a period sufficient to passivate the second type of transistors**.

As to claim 16, *Nakajima* fails to disclose or suggest that the first type of transistors are PMOS transistors and the first passivating gas is **H_2**, and the second type of transistors are NMOS transistors and the second passivating gas is **H_2O**.

As to claim 10, the teaching reference of *Lane* clearly fails to teach or suggest that **the first passivating gas and the second passivating gas are adapted for respectively passivating the first type of transistors and the second type of transistors**. Accordingly, claim 10 is distinctly different from and non-obvious over the applied references of *Nakajima* and *Lane.*

Claim 8 should be allowed as indicated in the Office Action.

New independent claim 17 is patentable over the applied references, because the references, especially *Nakajima*, clearly fail to teach or suggest a method of passivating a semiconductor device, said method comprising: providing the semiconductor device having first transistors of a first type and second transistors of a second type different from the first type; placing the semiconductor device in a chamber; and **passivating the first and second transistors with first and second passivating gases, respectively**; wherein said passivating comprises introducing the first and second passivating gases into the chamber; and heating the semiconductor device to a predetermined temperature for a predetermined period sufficient for the first and second passivating gases to passivate the first and second transistors, respectively. As discussed above with respect to claim 1, *Nakajima* does not appear to fairly teach or suggest a **passivating step** as presently claimed.

Claims 18-21 depend from claim 17, and are considered patentable at least for the reason advanced with respect to claim 17.

Each of the Examiner's rejections has been traversed/overcome. Accordingly, Applicants respectfully submit that all claims are now in condition for allowance. Early and favorable indication of allowance is courteously solicited.

The Examiner is invited to telephone the undersigned, Applicant's attorney of record, to facilitate advancement of the present application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 07-1337 and please credit any excess fees to such deposit account.

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